Amendments to the Claims:

The below-listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Original) An instrumented drill head for intended use with a drilling machine having a drilling element for penetrating the earth and a receiver for receiving information relating to the drilling operation, comprising:

a case including a rotatable chuck for receiving the drilling element;

a first sensor carried by the case for sensing and generating an output signal representative of a first parameter of the drilling operation; and

a transmitter for wirelessly transmitting the output signal to the receiver separate from the case.

2. (Original) The drill head according to claim 1, wherein the first parameter is a torque level on the drilling element, the first sensor includes a shear pin associated with a load cell for measuring a force acting on the shear pin, and the output signal represents the force acting on the shear pin.

3. (Original) The drill head according to claim 2, wherein the shear pin passes through a mounting plate associated with a housing of a motor for rotating the drilling element.

4. (Original) The drill head according to claim 2, wherein an actual torque level on the drilling element is estimated using the force acting on the shear pin and a distance between the shear pin and the approximate center of a drive gear for driving the drilling element.

5. (Original) The drill head according to claim 1, wherein the first parameter is a thrust level acting on the drilling element and the first sensor comprises a load cell for sensing the thrust level.

6. (Original) The drill head according to claim 1, wherein the first parameter is a rotational speed of the drilling element and the first sensor is an inductive proximity sensor for sensing the passing teeth on a drive gear for driving the drilling element.

7. (Previously Presented) The drill head according to claim 1, wherein the first sensor is internal to the case and separate from the drilling element.

8. (Original) The drill head according to claim 1, wherein the first parameter is a torque level on the drilling element and the first sensor comprises a shear pin and a load cell for sensing the force acting on the shear pin, and further including:

a second sensor for sensing the thrust level acting on the drilling element and generating a second signal;

a third sensor for sensing the rotational speed of the drilling element and generating a third signal; and wherein

the transmitter also transmits the second and third signals to the controller.

9. (Original) The drill head according to claim 1, wherein the transmitter mounts on the drill head and a controller including the receiver mounts to a structure on the drilling machine separate from the drill head.

10. (Previously Presented) The drill head according to claim1, further including a position sensor for generating a position signal representative of a relative position of the

drilling element, wherein the position signal is transmitted to the receiver via the transmitter.

11. (Original) An apparatus for performing a drilling or bolting operation using a drilling element or roof bolt, comprising:

a drill head including a case having an interior and an exterior;

a first sensor positioned in the interior of the case for sensing and generating an output signal representative of a first parameter of the drilling operation;

a controller separate from the case for controlling the drilling operation based at least in part on the first parameter, said controller including a receiver; and

a transmitter for wirelessly transmitting the output signal to the receiver.

12. (Original) The apparatus of claim 11, wherein the controller regulates one of a rotational speed or feed rate of the drilling element.

13. (Original) An apparatus for performing a drilling or bolting operation using a drilling element or roof bolt, comprising:

a drill head including a rotatable chuck for receiving the drilling element or roof bolt;

a sensor for sensing and generating an output signal representative of a first parameter of the operation;

a controller for controlling the operation based at least in part on the first parameter; and

a transmitter for wirelessly transmitting the output signal to the controller.

14. (Original) The apparatus of claim 13, further including a mast for supporting the drill head such that the drilling element may be advanced toward and away from the material

being drilled.

15. (Original) The apparatus of claim 13, further including an inserter for inserting resin in a borehole.

16. (Original) The apparatus of claim 15, wherein the inserter includes a first end for receiving a resin cartridge and a second end for insertion in the chuck.

17. (Previously Presented) An instrumented drill head intended for use with a drilling machine having a drilling element for penetrating the earth and a receiver for receiving information relating to the drilling operation, comprising:

a case including a rotatable chuck for receiving the drilling element;

a motor for rotating the drilling element;

a first sensor associated with the case for sensing and generating an output signal representative of a parameter of the drilling operation,

wherein the sensor is selected from the group consisting of a shear pin associated with a first load cell for sensing the torque acting on a mounting plate associated with the motor for rotating the drilling element, a second load cell for sensing the thrust level acting on the drilling element, and an inductive proximity sensor for sensing the passing teeth on a drive gear for driving the drilling element; and

a transmitter for wirelessly transmitting the output signal to the receiver.

18. (Original) A method of remotely transmitting information regarding a drilling operation using a drill head including a rotatable chuck for receiving a drilling element, comprising:

associating a first sensor with the drill head for sensing and generating an output

signal representative of a first parameter of the drilling operation; and

providing a receiver separate from the drill head for receiving the output signal, wherein the sensor and receiver are not connected to each other by wires.

19. (Cancelled)

20. (Currently Amended) The method of claim [[19]] 18, further including controlling the feed rate or rotational speed of the drilling element based on the output signal.

21. (Currently Amended) The method of claim [[19]] 18, further including the steps of forming a plurality of boreholes using the drill head and mapping earth conditions based on the output signals obtained during the forming step.

22. (Currently Amended) The method of claim [[19]] 18, further including indicating when the output signal represents unfavorable drilling or operating conditions.

23. (Currently Amended) The method of claim [[19]] 18, further including regulating the drilling operation based on the output signal to maximize the penetration and minimize wear on the drilling element depending on the type of material encountered.

24. (New) A roof bolter including the instrumented drill head of claim 1.